WHAT IS CLAIMED IS:

1. A control device for a living body, using an optical measurement system for the living body, comprising:

light incident means for applying lights of at least one wavelength in a visible-infrared region to a plurality of incident positions on a surface of the living body;

light detection means for detecting lights obtained by allowing said applied lights to be transmitted through the living body at a plurality of detection positions on the surface of the living body;

operation means for determining a type of output signal, based on an intensity of said transmitted light and pre-stored reference data, and for outputting a signal indicative thereof as the type of output signal;

memory means for storing the pre-stored reference data therein; and

an external equipment for executing a functional operation according to the type of output signal from said operation means;

wherein the incident positions of said light incident means and the detection positions of said light detection means are alternately disposed in square lattice form, and middle points between the incident positions and detection positions adjacent to one another are defined as measurement positions.

2. A control device for a living body, using an optical measurement system for the living body, according to claim 1, wherein transmitted light components of said transmitted light correspond to an oxy-hemoglobin concentration change value, a deoxy-hemoglobin concentration change value or a total hemoglobin concentration

change value in the living body.

3. A control device by a living body, using an optical measurement system for the living body, according to claim 2, wherein the oxy-hemoglobin concentration change value, the deoxy-hemoglobin concentration change value or the total hemoglobin concentration change value are changed to integrated values within an arbitrary measurement time, or changed to means values thereof within an arbitrary measurement time, or changed to rates of change thereof within an arbitrary measurement time.

4. A control device for a living body, using an optical measurement system for the living body, according to claim 1, wherein said light incident means applies light into a brain of a human being at the living body, and said light detection means detects light passing through the brain.

5. A control device for a living body, using an optical measurement system for the living body according to claim 1, wherein said operation means determines the type of output signal, based on the Mahalanobis distances and/or neural network processing of the intensity of said transmitted light and the pre-stored reference data, and for outputting the signal indicative thereof.

6. A control device for a living body, using an optical measurement system for the living body according to claim 1, wherein said light incident means transmits and applies the lights to said plurality of incident positions through light incident

optical fibers respectively provided so as to correspond to the incident positions, and said light detection means transmits and detects the transmitted lights to be applied to said plurality of detection positions through light detection optical fibers respectively provided so as to correspond to the detection positions.

7. An optical measurement instrument for a living body, comprising:

light incident means for applying lights of at least one wavelength in a visible-infrared region to a plurality of incident positions on a surface of a subject as the living body;

light detection means for detecting lights obtained by causing said incident lights to be transmitted through the subject at a plurality of detection positions on the surface of the subject;

operation means for determining a type of output signal, based on an intensity of said transmitted light and pre-stored reference data, and for outputting a signal indicative thereof as the type of output signal;

memory means for storing the pre-stored reference data therein; and

an external equipment for executing a functional operation according to the type of output signal from said operation means;

wherein said light incident means and said light detection means are supported by a cap-shaped probe; and

wherein optical fibers for said light incident means and said light detection means are fixedly mounted in respective corresponding holes of said cap-shaped probe independently of one another.

8. An optical measurement instrument for a living body according to claim 7, wherein transmitted light components of said transmitted light correspond to an oxy-hemoglobin concentration change value, a deoxy-hemoglobin concentration change value, or a total hemoglobin concentration change value in the living body.

9. An optical measurement system for a living body according to claim 8, wherein the oxy-hemoglobin concentration change value, the deoxy-hemoglobin concentration change value, or the total hemoglobin concentration change value are changed to integrated values within an arbitrary measurement time, or changed to mean values thereof within an arbitrary measurement time, or changed to rates of change thereof within an arbitrary measurement time.

10. An optical measurement system for a living body according to claim 7, wherein said light incident means applies light into a brain of a human being as the living body, and said light detection means detects light transmitting through the brain.

11. An optical measurement system for a living body according to claim 7, wherein said operation means determines the type of output signal, based on the Mahalanobis distances and/or neural network processing of the intensity of said transmitted light, and the pre-stored reference data, and for outputting the signal indicative thereof.

12. An optical measurement system for a living body, according to claim 7,

wherein said light incident means includes a plurality of light sources for outputting lights to said plurality of incident positions, and light modulation means intensity-modulates the lights outputted from said plurality of light sources.

13. An optical measurement instrument for a living body, comprising:

light incident means for applying lights of a plurality of wavelengths in a visible infrared region to a plurality of incident positions on a surface of a subject as the living body;

light detection means for detecting lights obtained by transmitting said applied lights through the subject at a plurality of detection positions on the surface of the subject; and

operation means for determining a type of output signal, based on an intensity of said transmitted light and pre-stored reference data, and for outputting a signal indicative thereof as the type of output signal;

memory means for storing the pre-stored reference data therein; and

an external equipment for executing a functional operation according to the type of output signal from said operation means;

wherein the incident positions of said light incident means and the detection positions of said light detection means are alternately disposed in square lattice form and middle points between the incident positions and the detection positions adjacent to one another are defined as measurement positions;

wherein said light incident means and said light detection means are supported by a cap-shaped probe; and

wherein optical fibers for said light incident means and said light detection

means are fixedly mounted in respective corresponding holes of said cap-shaped probe independently of one another.

14. An optical measurement system for a living body, according to claim 13, wherein transmitted light components of said transmitted light correspond to an oxy-hemoglobin concentration change value, a deoxy-hemoglobin concentration change value, or a total hemoglobin concentration change value in the living body.

15. An optical measurement system for a living body according to claim 14, wherein the oxy-hemoglobin concentration change value, the deoxy-hemoglobin concentration change value or the total hemoglobin concentration change value are changed to integrated values within an arbitrary measurement time, or changed to mean values thereof within an arbitrary measurement time, or changed to rates of change thereof within an arbitrary measurement time.

16. An optical measurement system for a living body according to claim 13, wherein said light incident means applies light into a brain of a human being, and said light detecting means detects light transmitting through the brain.

17. An optical measurement system for a living body, according to claim 13, wherein said operation means determines the type of output signal, based on the Mahalanobis distances and/or neural network processing of the intensity of said transmitted light, and the pre-stored reference data, and for outputting the signal indicative thereof.

18. An optical measurement system for a living body according to claim 13, wherein said light incident means includes a single light source for outputting light to said plurality of incident positions and a plurality of light transmission paths for distributing and transmitting the light outputted from said single light source as distributed lights to said plurality of incident positions.